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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,851	03/31/2004	Michael F. Cohen	MS1-1895US	5611
22801	7590	11/12/2008		
LEE & HAYES PLLC 601 W Riverside Avenue Suite 1400 SPOKANE, WA 99201			EXAMINER BITAR, NANCY	
			ART UNIT 2624	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/814,851	<b>Applicant(s)</b> COHEN ET AL.	
	<b>Examiner</b> NANCY BITAR	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/23/2008</u> .   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's response to the last Office Action, filed 02/07/2008, has been entered and made of record.
2. Applicant has amended claims 1, 7, and 13. Claims 4-6 have been cancelled. Claims 1, 3, and 7-19 are currently pending.
3. Applicants arguments filed 06/23/2008 have been fully considered but they are not persuasive.
4. As for the interview request by applicant, the undersigned Examiner can be contacted to schedule an interview at applicant convenience

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Applicant argues that Mittal does not mention a user outlining a plurality of segments and there is no monition, explicitly or implicitly, of a user being involved with the division of the image into blocks at all. Examiner disagree with applicant since Mittal teaches an apparatus for dividing images into blocks (paragraph [0026]) Note that "interactive user" was not recited in the rejected claim 1 and it is recited in the amended claim, even though it is believed that Mittal et al teaches the user examiner will use a third reference that will explain the user being involved

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with the division of the image into blocks. Although the Mittal does not explicitly explains whether an interactive user divides or its an automatic process but Mittal teaches user inputs in paragraph [0188], therefore, it is understood that there is an interactive user that divided the images into block and does the background modeling( i.e. outline) . Examiner used a secondary reference DeMenthon et al to teach the spatio temporal segmentation. in Section 5 wherein the segmentation results and outlines how the space time segmentation can be used to extract concise representations suitable for video retrieval. Moreover, DeMenthon et al teaches in figure 1 the discrete features, interest points, edges and blobs are extracted by a user therefore, it is obvious to one skilled the art, to extract the edge of the segments as taught by DeMenthon in the background modeling of Mittal in order to obtain cleaner boundaries and reduce the noise quality of the video data. .Moreover, the use of threshold which is the simplest technique according Mittal et al (paragraph [0188]) would imply that the system performs the division based upon threshold established by the user which still reads on claim 1 since applicant does not explicitly explains on what base the division occurs and the image can be divided and outlined based on a threshold or any other technique. Applicant argues that Examiner does not address claims 14-19 which include the element of a set of edge sheets that represent the surface of the single semantic region. Examiner believed that the edge sheet is more as the outline surface and the semantic region is taught as forming a background model in a high-dimensional space, paragraph [0019]. Examiner will expand more in the rejection below. All remaining arguments are reliant on the aforementioned and addressed arguments and thus are considered to be wholly addressed herein.

#### **Examiner Notes**

5. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations

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within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3,7-19 are rejected under 35 U.S.C. 103(a) as being unpatentable by Mittal et al (US 2005/0286764) in view of DeMenthon et al (Spatio-Temporal Segmentation of Video by Hierarchical Mean Shift Analysis, July 2002) further in view of Mojsilovic et al ( US 7,043,474)

As to claim 1, Mittal teaches a method for stylizing video, comprising: performing a spatio-temporal segmentation analysis on the video to identify three dimensional volumes (optical flow computation, spatio-temporal domain, paragraph [0012]) of contiguous pixels having a similar color;

receiving an interactive user input (paragraph [0188], user input, note that examiner interprets that the division based upon threshold established by a user shows that there is a user interface and thus the division is performed into blocks with respect to a user ) identifying a group of the three dimensional

volumes (forming a background model in a high-dimensional space, paragraph [0019]; wherein the three dimensional volumes of contiguous pixels comprise segments (apparatus for dividing the image into blocks, paragraph [0026]), Note that the optical flow constraint equation is applied at a given point defined by a spatial location and time to obtain respective constraints; applying an error function to combine the respective constraints from each the given point within a defined region for deriving a characteristic function; deriving a motion estimate from the characteristic function; and comparing the motion estimate with a given uncertainty model so as to derive a figure of uncertainty for optical flow measurement data, paragraph [0022], paragraph [0078]) wherein the interactive user input comprises outlining a plurality of segments While Mittal et al meets a number of the limitations of the claimed invention, as pointed out more fully above, Mittal fails to specifically teach the spatio-temporal segmentation having a similar color by mean shift analysis and outlining of plurality of segments .

Specifically, DeMenthon et al. teaches the use of spatio temporal segmentation of video sequences by adopting a hierarchical clustering method, which operates by repeatedly applying mean shift analysis over increasingly high ranges and perform a 3D segmentation of the video stack where a foreground object is in front of a similar color background object. Moreover, DeMenthon teaches segment the spatio temporal pixel volume of the video stack with respect to feature component including color component, frame coordinates and optical flow components. DeMenthon teaches the region segmentation with respect to different features which include edges because the segmentation analysis of DeMenthon includes similar color segmentation and motion segmentation, and consistent labeling of regions over time which amounts to region tracking. It would have been obvious to one of ordinary skill in the art to use the spatio-temporal segmentation analysis with similar color in Mittal in order to provide a hierarchical segmentation of data thus obtaining cleaner boundaries and help in video indexing and retrieval and a better video quality.

Mojisilovic et al teaches segmenting with respect to a user interface an input image by employing texture

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segmentation, color segmentation and foregoing / background segmentation where the foreground / background segmentation includes using the texture map and the region map to determine if there is at least one dominant object in the image, and to form an object map. The input image, texture map, region map and object map are further processed to compute for each region in the region map, and for each object in the object map, a set of local features that may include, but need not be limited to, size, boundary, neighbors, boundary curvature, texture, mean color, color name, and shape properties for each region/object. Moreover, Mojisilovic teaches a texture map is generated by computing a set of directional edge maps, followed by a region growing procedure. For color segmentation it is preferred to use a mean-shift algorithm (see paragraph 125, figures 15A-15B). It would have been obvious to one of ordinary skill in the art to interact the user involve the user in the system of Mittal in view of DeMenthon in order to have an accurate categorization can be achieved by exploiting the important visual properties of each modality. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 3, Mittal teaches the method of claim 1, wherein the spatio-temporal segmentation analysis comprises an anisotropic kernel mean shift segmentation procedure (anisotropic non-linear filters can be considered, paragraph [0129])

As to claim 7, Mittal teaches the method of claim 6, wherein the outlining (morphological operation) is performed on a number of keyframes of the video, the number of keyframes being fewer than a total number of frames of the video (note that the image is divided into blocks, and for each block, PCA is performed using a certain number of previous frames, paragraph [0026-0028], figure 1)

As to claim 8, Mittal teaches the method of claim 7, wherein additional segments on frames of the video other than keyframes are identified by determining a relationship of the additional segments to the segments outlined on the keyframes, (figures 9-11; paragraph [0079]).

As to claim 9 and 10, Mittal teaches relationship comprises at least a portion of the additional segments being enclosed by one or more of the segments outlined on the keyframes and at least a portion comprises at least a majority of pixels of the additional segments (The method is able to capture the long term dynamic characteristics of the scene, temporal and structural relationships between different pixels and multiple modalities of dynamic behavior, paragraph [0109], [0110] and see also DeMenthon ( frame coordinate, pages 3-4).

As to claim 11, Mittal teaches the method of claim 1, further comprising applying a stylization to the single semantic region (note that a simple model keeps a single background image, paragraph [0046]).

As to claim 12, Mittal teaches the method of claim 11, wherein the stylization comprises a mean shift technique (The Variable Bandwidth Mean shift and Data-Driven Scale Selection, paragraph [0082])

Claims 13 differ from claims 1 only in that claims 13 is a computer claim whereas, claims 1 is a method claim. Thus, claim 13 is analyzed as previously discussed with respect to claim 1 above.

As to claim 14, Mojislovic et al teaches the computer-readable medium of claim 13, wherein the instructions further comprise deriving a set of edge sheets that



represent the surface of the single semantic region and associating the edge sheets with the semantic region (figure 8, figure 15A-15B).

As to claims 15 and 16, Mojislovic et al teaches the computer-readable medium of claim 14, further comprising rendering the edge sheets as a curve between the semantic region and another portion of the video and wherein a thickness of the edge sheets is determined based on criteria associated with the single semantic region (image segmentation into regions of uniform color or texture, and further analysis of these regions, yields opposite results for the natural and man-made categories. Important characteristics of the man-made images are primarily straight lines, straight boundaries, sharp edges, and geometry. On the other hand, regions in images of natural scenes have rigid boundaries and random distribution of edges (column 14, lines 34—column 15, lines 13, see also DeMenthon figure 9).

As to claim 17, DeMenthon et al teaches a computer-readable medium of claim 16, wherein the criteria comprise a position of the edge sheet relative to an arclength of the edge sheet (section 2 and 5).

As to claims 18 and 19, DeMenthon et al teaches the criteria comprise duration of existence and movement of the semantic region in the video (section 3, figure 5 and 6).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

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MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/

Supervisory Patent Examiner, Art Unit 2624

Nancy Bitar

10/26/2008